

REMARKS/ARGUMENTS

Claims 1, 2, 3, 6, 7, 9, 13, 18, 19, 20, 22, 23, 24, 25, and 27 remain in this application. Claims 4, 5, 8, 10, 11, 12, 14, 15, 16, 17, 21, 26, 28, 29, and 30 have been canceled. Claim 10 is canceled in this amendment. The remaining canceled claims were canceled in previous Amendments.

A request for a three month extension of time to extend the period for response to the Office Action to August 5, 2004 and a Request for Continued Examination (RCE) accompanies this Amendment. In addition, authorization for withdrawing the payment for both the extension of time and the RCE from a deposit account is attached hereto. If the payment authorized is not sufficient for entry of this Amendment and the RCE or the request, the RCE and/or authorization for payment is missing, the Commissioner is hereby authorized to consider this a request for the necessary extension of time, and to charge Deposit Account No. 01-2384 the necessary amount for entry of this Amendment. A Verified Statement Claiming Small Entity Status was filed in this Application on January 11, 2000.

The undersigned wishes to express his appreciation for the courtesies extended during a telephone interview that took place on January 28, 2004 regarding this Application. An Interview Summary for this interview was previously filed by Express Mail on behalf of Applicants on February 27, 2004.

Applicants wish to express their appreciation for the indication of allowable subject matter in Claims 20 and 22-24. In view of the Amendment to Claim 20 discussed below, it is now believed that Claims 20 and 22-24 are in condition for allowance.

The objection to Claim 20 is respectfully traversed. As suggested by the Office, Claim 20 has been amended to delete the typographical error "read/write/device" and insert in its place the term "read/write device." It is submitted that this change is not substantive and does not affect the scope of Claim 20. It is therefore requested that the objection to Claim 20, as herein amended, be withdrawn.

The objection to the Specification is respectfully traversed. The Specification has been amended to replace the typographical error "Technical Filed" in the section heading with the corrected section heading "Technical Field". It is therefore requested that the objection to the Specification be withdrawn.

The rejection of Claim 18 under 35 U.S.C. 112, first paragraph is respectfully traversed.

Claim 18 has been amended to be dependent upon Claim 6 rather than Claim 13 and to recite that the "stored fingerprint data of the second person is that of a person who has authority to inspect or rewrite information in the portable information recording unit." Support for this amendment will be found at page 7, lines 3-6 and at page 10, lines 1-5 of the Specification as originally filed. For this reason, it is submitted that when the recitations of Claim 18 as herein amendment are read in conjunction with the recitations of Claim 6, the section 112, first paragraph rejection no longer applies.

For the above reasons, it is requested that the 35 U.S.C. 112, first paragraph rejection of Claim 18 be withdrawn.

The rejection of Claims 1 and 18 under 35 U.S.C. 112, second paragraph as being indefinite is respectfully traversed.

Claim 1 was rejected for reciting "said memory" in the last line. This recitation has been changed to "a memory". Thus, the 35 U.S.C. 112, second paragraph rejection of Claim 1 no longer applies.

Claim 18 was rejected for reciting "the information recording/processing device" in the last line. This recitation has been changed to "the portable information recording unit" and Claim 18 has also been made dependent upon Claim 6 rather than Claim 13. The antecedent basis for the portable information recording unit will be found on line 2 of Claim 6. Thus, the 35 U.S.C. 112, second paragraph rejection of Claim 18 no longer applies.

For the above reasons, the rejection of Claims 1 and 18 under 35 U.S.C. 112, second paragraph as being indefinite should be withdrawn.

The rejection of Claims 1-3, 13, and 27 as being unpatentable over U.S. Patent No. 5,559,504 as being unpatentable over Itsumi et al. (U.S. Pat. No. 5,559,504) in view of Harkin (U.S. Pat. No. 6,628,810) is respectfully traversed.

Although the Office asserts that fingerprint sensor 61 of Itsumi detects "fingerprint data" at the phrase spanning pages 5 and 6 in paragraph 12 of the Office Action, "fingerprint data" in its true or intrinsic meaning is not detected. Instead, a surface shape of a finger is detected in terms of changes in resistances among the linear contact electrodes 2 (col. 6, lines 12-24). However, the true meaning of the fingerprint data is the pattern of ridges and valleys of a fingerprint that is sensed in the claimed invention. See also Exhibit A of the Amendment mailed on November 12, 2003.

Moreover, the fingerprint sensing device of Harkin is a capacitance type which is quite different from the pressure-based fingerprint sensor of the claimed invention. In particular, Harkin describes that capacitance between a sense electrode 17 and a finger part acting as a ground electrode depends upon the spacings therebetween, which are determined by the ridges and troughs of a fingerprint. It is thus clear that the fingerprint sensing device of Harkin is of a capacitance type and comprises an active matrix addressed by a row and column array of conductors 18 and 20 and sensing elements 12, whereas the fingerprint input unit 10 of Itsumi comprises only an array of linear contact electrodes 2. Thus, it would not be obvious to modify Itsumi's electrodes 61 as taught by Harkin as asserted in the Office Action at page 7, lines 5-6, and one of ordinary skill in the art would not be motivated to replace one of these two quite different fingerprint sensing technologies with the other. More particularly, one of ordinary skill in the art would not be motivated to utilize the capacitance type fingerprint sensor of Harkin as the fingerprint sensor 61 or the fingerprint input unit 70 as a surface shape sensor of resistance type of Itsumi to reach a pressure-based fingerprint sensor of the claimed invention, in which fingerprints detected by the fingerprint sensor are converted into digital electrical signals as fingerprint minutiae points.

By contrast, Claim 1 as herein amended recites, among other things, "a pressure-based fingerprint sensor configured to sense a pattern of ridges and valleys of a fingerprint as surface pressure distribution by scanning a plurality of scanning electrode lines arranged in an x-direction and a plurality of scanning electrode lines arranged in a y-direction with an active element

connected to said x and y scanning electrode lines at each interconnection thereof; [and] a conversion unit configured to convert fingerprint data detected by the fingerprint sensor into digital electrical signals..." No such combination is taught or suggested either by Itsumi et al. or by Harkin, and it is submitted that it would not be obvious to one of ordinary skill in the art to combine the teachings of the two references in this manner. Thus, it is submitted that Claim 1 is patentable over Itsumi in view of Harkin.

Claim 13 is dependent upon Claim 1. When the recitations of Claim 13 are considered in combination with the recitations of Claim 1, it is submitted that Claim 13 is likewise patentable over Itsumi in view of Harkin.

Claim 2 recites, among other things, "a pressure-based fingerprint sensor configured to sense a pattern of ridges and valleys of a fingerprint as surface pressure distribution by scanning a plurality of scanning electrode lines arranged in an x-direction and a plurality of scanning electrode lines arranged in a y-direction with an active element connected to said x and y scanning electrode lines at each intersection thereof ...". No such combination is taught or suggested either by Itsumi et al. or by Harkin, and it is submitted that it would not be obvious to one of ordinary skill in the art to combine the teachings of the two references in this manner. Thus, it is submitted that Claim 2 is patentable over Itsumi in view of Harkin.

Claim 3 also recites a feature similar to that recited above in Claim 2, and it is submitted that Claim 3 is patentable over Itsumi in view of Harkin for reasons similar to that given above with respect to Claim 2.

Claim 27 recites, among other things, "... sensing a fingerprint of the individual on a fingerprint sensor of the flat information recording/processing device, wherein the fingerprint sensor is a pressure-based fingerprint sensor configured to sense a pattern of ridges and valleys of a fingerprint as surface pressure distribution by scanning a plurality of scanning electrode lines arranged in an x-direction and a plurality of scanning electrode lines arranged in a y-direction with an active element connected to said x and y scanning electrode lines at each intersection thereof ...". No such combination is taught or suggested either by Itsumi et al. or by Harkin, and it is submitted that it would not be obvious to one of ordinary skill in the art to combine the

teachings of the two references in this manner. Thus it is submitted that Claim 27 is patentable over Itsumi in view of Harkin.

For the above reasons, it is requested that the rejection of Claims 1-3, 13, and 27 as being unpatentable over Itsumi et al. in view of Harkin be withdrawn.

The rejection of Claims 6 and 7 as being unpatentable over Sehr (U.S. Pat. No. 6,565,000) in view of Harkin (U.S. Pat. No. 6,628,810) and Itsumi et al. (U.S. Pat. No. 5,559,504) is respectfully traversed.

Harkin and Itsumi are as described above. Itsumi is directed to a device for performing identification by sensing the fingerprint of a finger. Harkin is directed to a hand sensing biometrics scanning device that includes an array of sensing elements defining a sensing area over which a person's hand is placed and which has a first portion in which sensing elements are arranged to provide high resolution sensing suitable for sensing fingerprint patterns and a second portion in which the sensing elements are arranged to provide lower resolution sensing suitable for sensing at least one other hand biometric characteristic. Neither Itsumi nor Harkin teach or suggest providing security that depends upon a second person different from a first person.

Sehr discloses that the biometrics characteristics information of a particular passenger can be stored in a passenger card 11. However, Sehr does not disclose that card 11 has a second memory unit configured to store passenger specific information, even at col. 14, lines 24-31 cited by the Office. More particularly, card 11 must have both the first memory for storing the passenger's biometrics information and the second memory for storing the passenger's specific information. Significantly, card station 1 has no memory configured as a third memory unit configured to store biometrics data of another person different from the passenger. At col. 6, lines 61-63 cited by the Office, it is understood that card station 1 has a database as a third memory unit for storing the biometrics information of the same passenger or the card holder. Thus, Sehr neither teaches nor suggests providing security with respect to persons working in the card station 1.

Claim 6 is directed to an embodiment of a type shown in Figures 1A, 1B-3 to increase security regarding a second person who is intended to use the information recording unit. More

particularly, Claim 6 as amended herein recites "... a portable information recording unit carried by a first person...; an information processing unit used by a second person different from said first person...; and said portable information recording unit is configured to combine with said information processing unit to enable said system to operate wherein a fingerprint matching operation is started." No such security with respect to the first and second persons is taught or suggested by Sehr, Harkin, or Itsumi, or combinations thereof. Therefore, it is submitted that Claim 6 is patentable over Sehr in view of Harkin and Itsumi.

Claim 7 is dependent upon Claim 6. When the recitations of Claim 7 are considered in combination with the recitations of Claim 6, it is submitted that Claim 7 is likewise patentable over Sehr in view of Harkin and Itsumi.

For the above reasons, it is submitted that the rejection of Claims 6 and 7 as being unpatentable over Sehr in view of Harkin and Itsumi should be withdrawn.

The rejection of Claims 9, 10, and 18 as being unpatentable over Murphy (U.S. Pat. No. 6,225,890) in view of Takahashi (U.S. Pat. No. 5,172,785) is respectfully traversed.

Applicants believe that Murphy (U.S. Pat. No. 6,225,890) provides no teaching or suggestion of any kind of information that is specific to a driver or an operator that is of a type similar to the "user-specific information" recited in Claim 9, even at col. 6, lines 49-54 and col. 15, lines 55-65 as cited by the Office. Thus, the category of information stored in the system disclosed in Murphy that the system uses to control actions is different from that used for restriction or control recited in Claim 9. There is also no teaching or suggestion that pre-registered fingerprint data is stored in a memory, and that the "user-specific information" is stored in a second memory. The Office has already correctly noted that Murphy's controller is unable to automatically control operation of the vehicle based on personal characteristics, such as age.

Applicants submit that it would not be obvious to modify the system taught by Murphy with the teachings of Takahashi (U.S. Pat. No. 5,172,785) because it is not clear how the controlling mechanism shown in Figure 14 of Takahashi would be applied to the vehicle control system shown in Figure 7 of Murphy. More specifically, how and which elements of the vehicle control system of Murphy are replaced by the driver's accelerating characteristic estimator 35 and

the throttle opening controller 34 of the controlling system of Takahashi and of which elements of Murphy's vehicle control system is information of "age" taken out, are not obvious, as such user specific information is not stored in the system.

By contrast, Claim 9, as herein amended, recites, among other things, "... a fingerprint matching unit configured to compare fingerprint data newly detected by the fingerprint sensor with pre-registered fingerprint data stored in a memory or fingerprint data previously detected by the fingerprint sensor; and a control mechanism configured to control operation of a machine/system utilizing user-specific information stored in a second memory, when there is a match of the newly detected fingerprint data with the pre-registered fingerprint data or the previously detected fingerprint data, wherein said user-specific information comprises personal characteristics of users." The operation of the machine/system is controlled or restricted in accordance with updateable user-specific information of an operator who is authorized on the basis of his or her fingerprint. Examples of the user specific information are name, sex, age, license number, category of the license, upper speed limit, history of traffic accidents, case history, etc. (See page 14, lines 11-13.) Such information is user-specific or specific to the control of the machine/system as described in paragraphs (1) and (2) on page 17, line 18 to page 18, line 8. It is submitted that one of ordinary skill in the art would not combine Murphy with Takahashi to obtain such a combination. Therefore, it is submitted that Claim 9 is patentable over Murphy in view of Takahashi.

Claim 10 has been cancelled, so the rejection of Claim 10 over Murphy in view of Takahashi no longer applies and should be withdrawn.

Claim 18 as herein amended is dependent upon Claim 6. As best understood, both Murphy and Takahashi are directed to vehicle control systems, and neither Murphy nor Takahashi teach or suggest a portable information recording unit carried by a first person, an information processing unit used by a second person different from the first person, and said portable information recording unit being configured to combine with said information processing unit to enable said system to operate wherein a fingerprint matching operation is started, as recited in Claim 6. Therefore, it is submitted that Claim 6 is patentable over Murphy in view of Takahashi. Claim 18 is dependent upon Claim 6. When the recitations of Claim 18

are considered in combination with the recitations of Claim 6, it is submitted that Claim 18 is likewise patentable over Murphy in view of Takahashi.

For the above reasons, it is requested that the rejection of Claims 9, 10, and 18 as being unpatentable over Murphy in view of Takahashi be withdrawn.

The rejection of Claim 19 as being unpatentable over Murphy (U.S. Pat. No. 6,225,890) in view of Takahashi (U.S. Pat. No. 5,172,785) as applied to Claim 9 and further in view of Harkin (U.S. Pat. No. 6,628,810) is respectfully traversed.

Murphy and Takahashi are as described above. Harkin is directed to a hand biometric sensing device that includes an array of sensing elements defining a sensing area having a first portion and a second portion, as described above. Harkin adds nothing to the combination of Murphy and Takahashi to teach or suggest the use of user-specific information stored in a second memory and said user specific information comprising personal characteristics of users. Therefore, it is submitted that Claim 9 is patentable over Murphy in view of Takahashi and further in view of Harkin.

Claim 19 is dependent upon Claim 9. When the recitations of Claim 19 are considered in combination with the recitations of Claim 9, it is submitted that Claim 19 is likewise patentable over Murphy in view of Takahashi and further in view of Harkin.

The rejection of Claim 25 as being unpatentable over Scott et al. (U.S. Pat. No. 6,111,977) in view of Takahashi (U.S. Pat. No. 5,172,785) in view of Murphy (U.S. Pat. No. 6,225,890) is respectfully traversed.

Takahashi and Murphy are as described above. Neither teaches or suggests converting fingerprint data into minutiae data.

Contrary to the assertions of the Office, Scott does not teach or suggest converting fingerprint data into minutiae data either. Scott does disclose coding of a fingerprint and that a door of a vehicle will open if a decoded signal matches a previously coded individual's fingerprint (col. 2, lines 31-34). However, the transmission that occurs is of a fingerprint *image*, not minutiae data. See col. 4, lines 8-12. Any "encoding" of the fingerprint data that takes place is

apparently an encoding of the image so that it can be transmitted as an IR or RF signal. See col. 4, lines 4-8 and col. 4, lines 12-27. There is no teaching or suggestion that this coding has anything to do with encoding minutiae data.

By contrast, Claim 25 as herein amended recites that fingerprint data are converted into minutiae data, which are in turn transmitted to a receiver mounted in the vehicle, and the minutiae data are compared with data stored in a database arranged in the vehicle. This configuration has the advantage that minutiae data can be transmitted in about 1 Kbyte in comparison with fingerprint data, which would require the transmission of about 60 Kbytes of data.

Also, Claim 25 recites not only that opening of a door is conditioned upon a match of minutiae data, but also a vehicle speed is limited. Driver-specific information that is previously stored is used to limit the vehicle speed, which is distinguishable from Murphy and Takahashi as described above in connection with Claim 9 above.

For the above reasons, it is submitted that the rejection of Claim 25 over Scott et al. in view of Takahashi and further in view of Murphy should be withdrawn.

In view of the foregoing amendments and remarks, all of the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



Alan L. Cassel
Registration No. 35,842
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070